

2012 Aerial Insect and Disease Survey

USGS 100K Quad: SEATTLE - E147122; 3C



| Mortality Agents | | | Other Damaging Agents | | |
|------------------|----------------------------|-----------------------------|-----------------------|----------------------------|------------------|
| Code | Damaging Agent | Primary Host | Code | Damaging Agent | Primary Host |
| 1 | Douglas fir beetle | Douglas fir | AB | Balsam woolly adelgid | True fir |
| 2 | Douglas fir engraver | Douglas fir | AM | Leaf discoloration | Maple |
| 3 | Spruce beetle | Spruce | BR | Bitter rot | Flamethorn |
| 4 | Fir engraver | True fir | CC | Cystipora canker | True fir |
| 5 | Western balsam bark beetle | Subalpine fir | CH | Chlorophyll deficiency | Hardwood |
| 6B | Mountain pine beetle | Ponderosa pine | DI | Dying hemlock | All species |
| 6L | Mountain pine beetle | Lodgepole pine | FD | Fire | Hardwood decline |
| 6P | Mountain pine beetle | Ponderosa pine | HD | Hardwood decline | Hardwood |
| 6S | Mountain pine beetle | Lodgepole pine | HN | Harvested decline | Aspen |
| 6W | Mountain pine beetle | Western white pine | ND | Areas not flown - non host | Oak |
| 7 | True spruce | Pseudotsuga sitchensis | NH | Areas not flown - host | Pacific madrone |
| 8 | Western white pine | Ponderosa pine | PN | Pacific madrone decline | Poplar |
| 8B | Western white pine | Pine-stem pincer | PR | Leaf roll in poplar | Poplar |
| 9 | Beet damage | Douglas fir, ponderosa pine | RD | Rust leaf in poplar | All species |
| FL | Flameleaf woodborer | Pine | SLD | Shaded | All species |
| WD | Root disease | Root collar rot | WN | Windthrow | All species |
| WTR | Water damage | Conifer | WTR | Water damage | All species |

| Defoliators | | |
|-------------|------------------------------|-------------------------------|
| Code | Damaging Agent | Primary Host |
| BS | Western spruce budworm | True fir, Douglas fir, spruce |
| CH | Larva casebearer/needleminer | Western larch |
| LC | Western hemlock looper | Western hemlock |
| LS | Black pine/needle scale | Ponderosa pine |
| PC | Pine needle cast | Lodgepole pine |
| PN | Pine needle scale | Ponderosa pine |
| PL | Pine needle sheathminer | Ponderosa pine |
| SA | Needle cast | Western larch |
| SK | Sawfly | True fir |
| SK | Sawfly | Conifer |
| SK | Sawfly | Kobovos pine |
| SK | Sawfly | Lodgepole pine |
| SM | Satin needle cast | Aspen |
| SNC | Satin needle cast | Douglas fir |
| TA | Tent caterpillar | Aspen |
| TC | Tent caterpillar | Hardwood |
| TM | Douglas fir tussock moth | True fir, Douglas fir |
| UNWD | Unknown defoliating agent | All species |

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Map Scale: 1:100,000
Date: 11 December 2012

Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- WadNR Managed Lands
- Areas Not Flown

Source: Washington Dept. of Natural Resources

The cause of damage is described by a symbol above and is followed by the number of trees affected; number of trees (example: SA1 or INTENSITY OF DAMAGE (L- Light, M- Moderate, H- Heavy).

The TOPO! maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps. For more information on this map, visit us online at http://gto.arcgis.com/maps/usa/Topo_Maps

A data dictionary, digital copies of this map and Arctis insect and disease data are available at www.fs.usda.gov/gto/r/fhp/ads

How the Aerial Surveys Are Conducted

Data represented on this map are based on trees visibly affected by forest insects and diseases detected and recorded during aerial survey flights conducted by the USDA Forest Service, the Washington Department of Natural Resources and the Oregon Department of Forestry. Observers have just a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced, digital map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

The aerial survey provides information on the current status for many causal agents, and is important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a 'snap shot' in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Specially designed surveys with modified flight patterns and timing may be conducted to more accurately delineate the extent and severity of a particular disturbance agent. Special surveys, such as Swiss needle cast surveys, are conducted when resources are available to address situations of sufficient economic, political or environmental importance.

DIRECT ALL INQUIRIES TO:

Washington State Department of
Natural Resources
 Resource Protection Division
 Forest Health
 1111 Washington St. SE
 MS 47037
 Olympia, WA 98504-7037

-- OR --

USDA Forest Service, Region 6
 State and Private Forestry
 Forest Health Protection
 PO Box 3623
 Portland, Oregon 97208

DISCLAIMER
 Forest Health Protection (FHP), Washington Department of Natural Resources (WDNR) and Oregon Department of Forestry (ODF) strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP, WDNR and ODF shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines. <http://www.fs.usda.gov/gto/r/fhp/ads/> quality assurance sheet. Maps and data may be updated without notice. Please cite: 'USDA Forest Service, Forest Health Protection, Washington Department of Natural Resources, Resource Protection Division, and Oregon Department of Forestry, Forest Health Management' as the source of this data.